

**For \$150 and a bit of work  
you can have**

# **Color pictures on your present television set**

**A converter you install without pulling the chassis puts color on the same tube you are now using.**

**By Hubert Luckett**

**C**OLOR television for you may be as close as the set you're watching now. With a new converter hooked to that same black-and-white re-

ceiver, you can see colorcasts in color any time they're on.

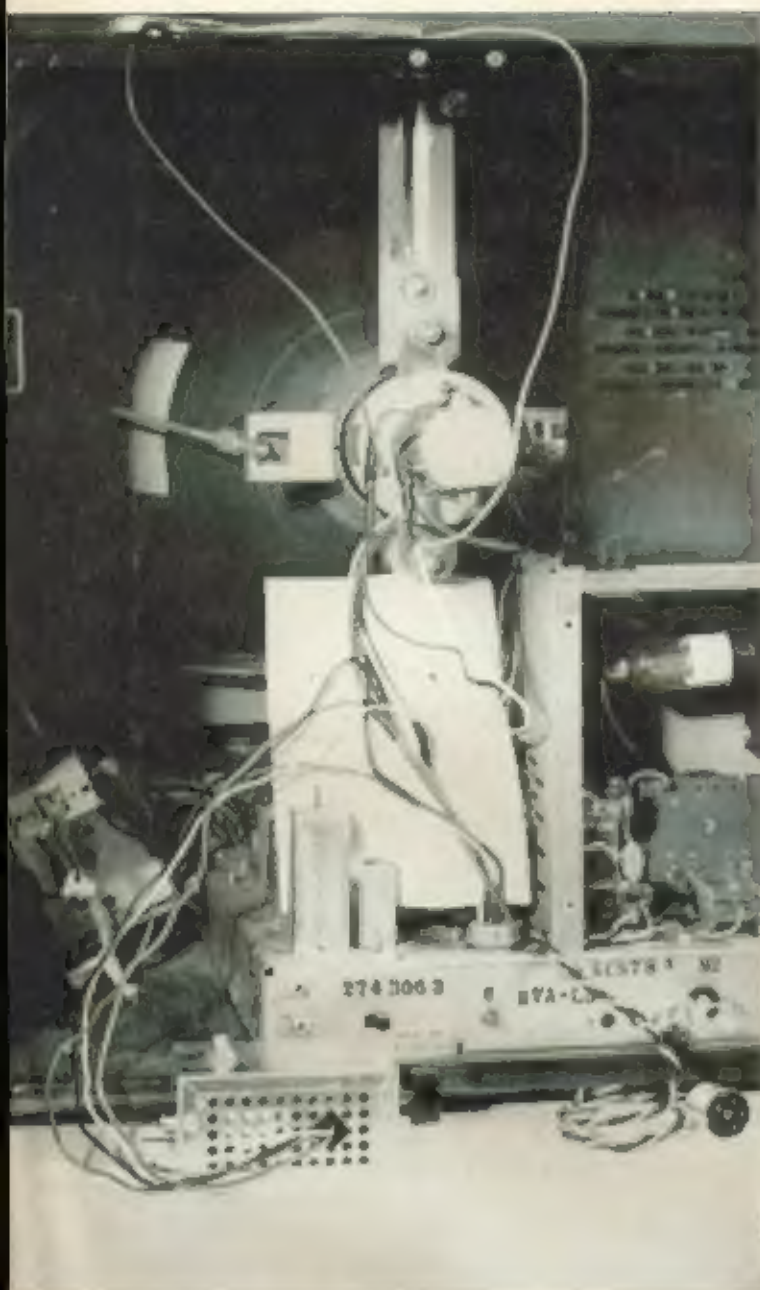
You just take the circular viewing unit out of the closet, place it on the set, plug it in, and throw a switch. Those big-time color shows you formerly saw in monotone will blossom into brilliant hues.

The outfit costs about \$150. If you install it yourself, this is all it should cost to put your family into the color



**THESE PARTS ADD COLOR.** The converter can be mounted either on top of the set as shown here, or vertically behind the cabinet, thus leaving the top entirely clear when the color disk

is removed. This wheel unit, which rests on rubber feet and requires no fastening to your TV set, can be disconnected and quickly removed for black-and-white reception.



**ALL REMAINING CONNECTIONS** are made to the deflection coils. The red lead from the picture-size control box, shown at bottom of photo at left, goes to the high-potential side of the horizontal deflection coil. Black lead goes to the low-potential end of this coil. Green and yellow leads from the same control box are spliced in parallel with the vertical deflection coil. Polarity in this case is unimportant; either of the latter leads can go to either side of the coil.

can be mounted behind the TV set with its controls accessible from top or side; a picture-size control box that includes the switch; and the scanning unit, a circular case containing the color-filter wheel, a small motor and a commutator.

**Tuning in to color.** Only three extra controls are involved in switching to a color program. With the scanning unit in place, the switch on the control box is turned to "color." The picture is then tuned to its sharpest with the fine tuning control, contrast and brightness being turned up somewhat higher than for black-and-white reception.

Next the converter is turned on, the motor starting switch held down until the wheel reaches its full speed of 600 r.p.m., and speed adjusted so that the filter seams disappear. The color-gain control is set for the desired amount of color, and the color lock control is finally used to key

of fine detail in the black-and-white picture), there may not be enough color signal to work the converter. Older sets, which have wider IF bands than some current ones, will produce better color images.

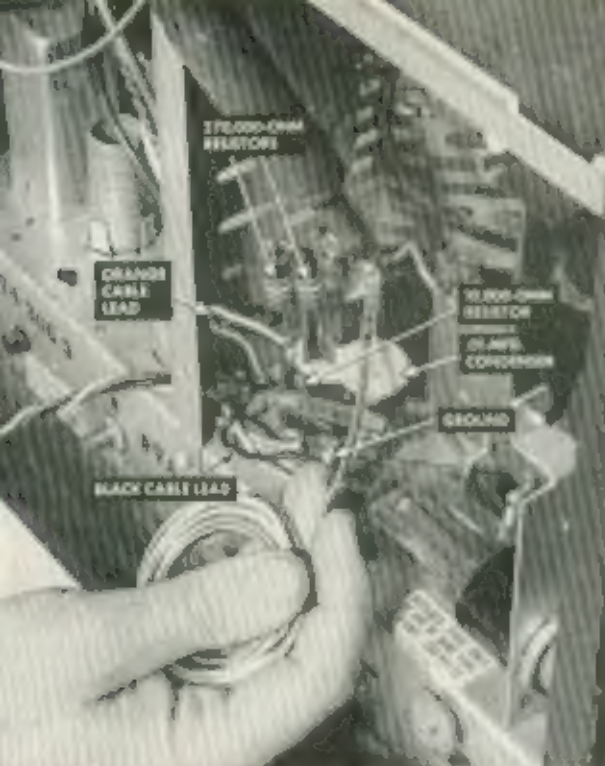
There are only three main parts to the outfit: a seven-tube converter, which

the proper color to the various elements of the image on the screen.

On some sets the best color rendition may be obtained by slightly detuning the fine tuning control.

The Col-B-Tel converter is manufactured by Color Converter Inc., of Columbia City, Indiana. END





**THREE CONNECTIONS** hook a voltage divider up to the horizontal output tube. Solder the free lead of the ceramic condenser directly to the plate cap, as above. The orange lead from the converter goes to the joint between the two 2-watt resistors and the  $\frac{1}{2}$ -watt resistor. The lower end of the latter and the black converter lead are grounded to the cabinet frame.

The now standard compatible NTSC system sends a color picture that comes in as a black-and-white one on any non-color set. The matching color receiver has a special picture tube with three electron guns, plus a screen having thousands of phosphor dots of the three primary hues. A shadow mask and appropriate circuitry allow each beam to hit only dots of its corresponding color. The picture thus consists of a mosaic of fine color dots, like some color engravings.

The Col-R-Tel converter uses the image on an ordinary black-and-white tube. Feeding back to the tube video information that the set would otherwise ignore, it keys the single electron beam to the proper illumination for each color at each spot on the screen. Then it locks a three-



**A BLUE WIRE** from the converter must be connected to the plate of the vertical output tube. This is done from above the chassis by pulling the tube out and slipping a coiled spring clip on the plate prong, as above. Pulses from this tube, fed through a two-stage amplifier, control motor speed to synchronize the color wheel with framing frequency. Result—an image.

color filter disk in step with the framing frequency, somewhat like the CBS system, producing a color picture.

**Got a soldering iron?** Installation is simple if you have the wiring diagram for your TV set and know how to read it. Only 10 connections have to be made to the receiver, none of them below the chassis. But you must be able to identify the picture-tube leads, and you must know whether the video signal in your set is fed to the cathode or the grid of this tube. So it isn't a job for anyone utterly inexperienced to tackle without competent help.

Of course the set must be in good condition for black-and-white reception, and properly aligned. If its band width is less than it should be (noticeable by loss